CLAIMS

1.   A data access, replication or communications system comprising a software application that is distributed across a terminal-side component running on a terminal and a server-side component;

        in which the terminal-side component and the server-side component (i) together constitute a client to a server and (ii) collaborate by sending messages using a message queuing system over a network.

2.   The system of Claim 1 in which the message queuing system is message oriented middleware.

3.   The system of Claim 1 in which the terminal-side component insulates a terminal program from being affected if the connection over the network is broken by also queuing messages in readiness for the connection to be re-established, enabling the terminal program to proceed to its next task.

4.   The system of Claim 1 in which the server-side component insulates a server program from being affected if the connection over the network is broken by also queuing messages in readiness for the connection to be re-established, enabling the server program to proceed to its next task.

5.   The system of Claim 1 in which each message that is queued defines part or all of an event, in which an event describes a change to the data stored at either the terminal or server in enough detail to enable data replication to take place without the need for a synchronisation engine; data replication being achieved by sending events rather than a complete dataset (or sub-sets of a dataset) of stored data for synchronisation.

6.   The system of Claim 5 in which the terminal-side component can create events and queue those events, itself and/or in the message queuing system, enabling the terminal-side component to proceed to its next task, even if the network connection is broken.

7. The system of Claim 5 in which the server-side component can create events and queue those events, itself and/or in the message queuing system, enabling the server-side component to proceed to its next task, even if the network connection is broken.

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8. The system of Claim 6 in which queued events persist in non-volatile memory even when the terminal is switched off.

9. The system of Claim 7 in which queued events persist in non-volatile memory

10 even when the server is switched off.

10. The system of Claim 1 in which the terminal-side component and the server-side component collectively constitute middleware between a terminal program running on the wireless terminal and a server program running on the server.

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11. The system of Claim 6 in which messages that are queued on the terminal side are references to data held on the server.

12. The system of Claim 10 in which a message queuing system on the terminal side

20 insulates the terminal program from being affected if the connection over the network is re-established by automatically causing the next message in a terminal-side queue to be sent.

13. The system of Claim 10 in which a message queuing system on the server side

25 insulates the server program from being affected if the connection over the network is re-established by automatically causing the next message in a server-side queue to be sent.

14. The system of Claim 1 in which the terminal-side component processes events

30 from a terminal program, which is an e-mail or PIM program.

15.   The system of Claim 1 in which the server-side component processes events from a server program, which is a mail server program.

16.   The system of Claim 1 in which the terminal is a wireless terminal, such as a mobile telephone or smartphone.

17.   The system of Claim 1 in which the network is a wireless WAN network, such as a GPRS or UMTS network.

18.   The system of Claim 1 in which the server-side component stores a logon password sent from the terminal-side component and can use this logon to access a server program.

19.   The system of Claim 1 in which the server-side component can assemble a message that the terminal-side component wishes to send by using data held on the server in order to avoid that data needing to be sent over the network from the terminal.

20.   The system of Claim 1 in which the terminal-side component monitors available memory on the terminal and automatically deletes data stored on the terminal that meets pre-defined criteria of age and/or use and/or size without affecting the corresponding data stored on the terminal.

21.   The system of Claim 20 in which a user option to delete data stored on the terminal without affecting the corresponding data stored on the server is displayed at the same level in a menu hierarchy displayed on the terminal as an option to delete data stored on the terminal together with the corresponding data stored on the server.

22.   The system of Claim 20 in which the data is message data and the terminal side component retains data that allows the message data to be re-supplied from the server if requested by a user.

23. The system of Claim 20 in which data is not released from memory if the data is marked as unread, open for user viewing or action, or there is a pending action related to the data requesting additional data from the large server.

5   24. The system of Claim 1 in which the terminal-side component enables a document attachment to be sent to the wireless terminal in either the original format in which the document is stored at the server or in a more useable format converted from the original format.

10   25. The system of Claim 1 in which the terminal-side component enables a user to (a) select a release option to delete a message stored on the terminal but not the corresponding message stored on the server and also to (b) select a delete option to delete a message stored on the terminal and also the corresponding message on the server, the release and delete options appearing at the same level in a menu hierarchy

15   displayed on the terminal.

26. The system of Claim 1 in which the application enables the correct routing of messages addressed to a terminal identified by an ID by mapping that ID to the actual IP address needed to reach the terminal.

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27. The system of Claim 26 in which the address is a dynamic IP address allocated by a NAT box.

28. The system of Claim 27 in which the application only initiates a message transfer

25   if there exists a valid mapping.

29. The system of Claim 28 in which a mapping is refreshed whenever a specific kind of small, dedicated message is received from the terminal.

30   30. The system of Claim 1 in which the terminal-side component allows a server administrator to lock an application on the terminal without affecting other applications on the terminal.

31.　The system of Claim 1 in which the terminal component sends a challenge to any third party suspected of attempting a denial of service attack on the terminal and that denial of service attack does not then lead to any additional data traffic to the terminal.

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32.　The system of Claim 1 in which the application comprises a distributed application platform that makes calls to a distributed communications platform.

33.　The system of Claim 32 in which the communications platform enables delivery
10　of a message over the network to be reliable, even if an unreliable transport protocol is used, in which the platform operates in a session independent manner

34.　A method of data access, replication or communication comprising the steps of:

(a)　running a software application that is distributed across a terminal-side
15　component and a server-side component, in which the terminal-side component and the server-side component together constitute a client to a server

(b)　sending messages between the terminal-side component and the server-side component using a message queuing system over a network.

20　35.　The method of Claim 34 in which the software application is an element of a system as defined in any preceding Claim 1 – 33.

36.　A terminal when programmed with the terminal-side component that is an element of a system as defined in any preceding Claim 1 – 33.

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37.　A server when programmed with the server-side component that is an element of a system as defined in any preceding Claim 1 – 33.

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